

## Session 5: Monitoring and control

Chairman: Al Dimillio

Technical secretary: Mary Ellen Bruce

### Conclusions

- Integrity testing may not be applicable to drilled & grouted micropiles due to high length to diameter ratio. Dr. Biddle showed some acceptable results for driven piles. Mike Turner told about comprehensive study that was done in the UK.
- It is important to correct dynamic load testing results for inertia effects. Further discussion in session confirmed earlier statements that both drilled and grouted micropiles work similarly in compression and tension.
- Capacity testing methods for conventional driven large diameter piling appear applicable for micropiles, driven or grouted.
- Fred Kulhawy gave some good advice on what to do and not to do in monitoring and testing (need for watertable information).
- Mike Turner emphasized the importance of environmental awareness (avoiding pollution due to drilling flush and grouting spillage).
- Roger Frank gave some insight into the results for FOREVER capacity tests and proposed a new MP term "forest of micropiles" when talking about groups and networks of Micropiles.
- Jorma Hartikainen spoke about the importance of ground water monitoring and illustrated a number of local problems of serious proportions.
- The need of standardization of load test procedures became well established.
- The advantage of having a comprehensive data base of research quality information was also established and learned about several source of good data to follow-up on.
- The importance of monitoring and testing was emphasized through the session and future efforts should be done with diligence and full enthusiasm.